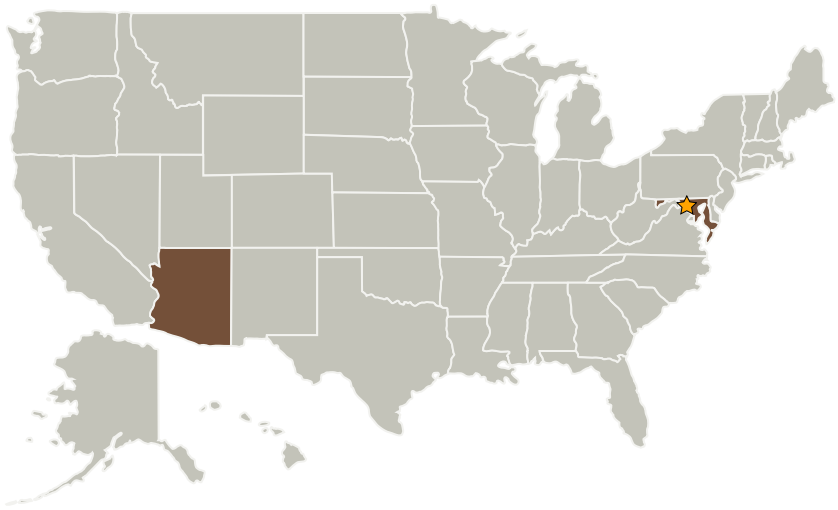
Portable, Solid-State Light Sources for Field Radiometric Calibrations, Phase I

Completed Technology Project (2006 - 2006)

Project Introduction

Various Earth Science fields require well-calibrated field radiometers whose calibrations must be tracked and verified in the field. NASA has long recognized the need to monitor and maintain calibrations of in-situ radiometric instruments. However, the light sources that have been developed for calibration monitoring typically require high power, are bulky and difficult to use in the field, and do not work with all types of radiometers. We propose a next-generation portable, ultra-stable, lightweight and highly versatile light source based on light-emitting diodes (LEDs). Recent advances in LEDs include higher power, efficiency, and a wider range of wavelengths (from UV to IR). These advances, coupled with LEDs' inherent suitability for electronic feedback stabilization, make them excellent candidates for more compact and power-efficient calibration sources. During Phase I we will identify and test LED devices, measurement and stabilization techniques, and physical configurations for use in one or more calibration sources. In Phase II we will build prototypes and implement a program for test and evaluation in cooperation with recognized calibration laboratories. At the conclusion of Phase II we will be ready to produce and sell a commercial version.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
HOBI Labs, Inc.	Supporting Organization	Industry	Tucson, Arizona

Primary U.S. Work Locations	
Arizona	Maryland

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.1 Detectors and Focal Planes